

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 25 January 2001 (25.01.01)	
International application No. PCT/EP99/03819	Applicant's or agent's file reference ETM99-09
International filing date (day/month/year) 31 May 1999 (31.05.99)	Priority date (day/month/year)
Applicant WOLS, Ralph	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

13 December 2000 (13.12.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer F. Baechler
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PCT INTERNATIONAL COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

KÄRKKÄINEN, Veli-Matti
Ericsson Eurolab Netherlands B.V.
Intellectual Property Dept.
P.O. Box 8
NL-5120 AA Rijen
PAYS-BAS

Date of mailing (day/month/year) 25 January 2001 (25.01.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference ETM99-09	
International application No. PCT/EP99/03819	International filing date (day/month/year) 31 May 1999 (31.05.99)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address KÄRKKÄINEN, Veli-Matti Ericsson Telecommunicatie B.V. Intellectual Property Dept. P.O. Box 8 NL-5120 AA Rijen Netherlands	State of Nationality	State of Residence
	Telephone No. +31-161-242646	
	Facsimile No. +31-161-247742	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input checked="" type="checkbox"/> the name	<input type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address KÄRKKÄINEN, Veli-Matti Ericsson Eurolab Netherlands B.V. Intellectual Property Dept. P.O. Box 8 NL-5120 AA Rijen Netherlands	State of Nationality	State of Residence
	Telephone No. +31-161-242646	
	Facsimile No. +31-161-247742	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer F. Baechler
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ETM99-09	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 99/ 03819	International filing date (day/month/year) 31/05/1999	(Earliest) Priority Date (day/month/year)
Applicant TELEFONAKTIEBOLAGET LM ERICSSON et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

SYSTEM AND METHOD FOR DISTRIBUTING AIRLINE INFORMATION TO CLOSED USER GROUPS

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

2

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 99/03819

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L12/58 H04Q7/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 03005 A (EUROPOLITAN AB ;REXEKE JONAS (SE)) 22 January 1998 (1998-01-22) abstract page 2, line 12 -page 3, line 3 page 3, line 14 - line 32 page 5, line 6 - line 31 figures 1,2	1-5
Y		10
X	EP 0 836 301 A (AT & T CORP) 15 April 1998 (1998-04-15) abstract column 2, line 8 -column 3, line 16 column 4, line 40 -column 5, line 44 column 8, line 46 - line 57 figures 1-4	1,3-7,9
A		10-15
	-/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

23 November 1999

Date of mailing of the international search report

01/12/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3018

Authorized officer

Poggio, F

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP 99/03819

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	"PERSONAL COMMUNICATORS REQUIRE END-TO-END COMMUNICATIONS" COMPUTER DESIGN, US, PENNELL PUBL. LITTLETON, MASSACHUSETTS, vol. 32, no. 12, page 71, 74, 76 XP000425193 ISSN: 0010-4566 page 71, left-hand column, line 1 -right-hand column, line 10 figure 1	10
A	WO 98 58476 A (TELECOM WIRELESS SOLUTIONS INC) 23 December 1998 (1998-12-23) abstract page 6, line 1 -page 7, line 24 page 15, line 8 - line 11 figures 1-3, 18	1, 3, 5-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 99/03819

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9803005	A	22-01-1998	SE 506976 C	09-03-1998
			AU 3712197 A	09-02-1998
			EP 0909505 A	21-04-1999
			NO 990102 A	11-03-1999
			SE 9602765 A	13-01-1998
EP 0836301	A	15-04-1998	US 5905777 A	18-05-1999
			CA 2213889 A	27-03-1998
			JP 10124417 A	15-05-1998
WO 9858476	A	23-12-1998	AU 8146798 A	04-01-1999

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 07 AUG 2001

WIPO PCT

14

Applicant's or agent's file reference ETM99-009		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/03819	International filing date (day/month/year) 31/05/1999	Priority date (day/month/year) 31/05/1999	
International Patent Classification (IPC) or national classification and IPC H04L12/58			
Applicant TELEFONAKTIEBOLAGET LM ERICSSON et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 16 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 13/12/2000	Date of completion of this report 03.08.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Cretaine, P Telephone No. +49 89 2399 8828 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/03819

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1	as originally filed			
2-12	as received on	26/06/2001	with letter of	21/06/2001

Claims, No.:

1-12	as received on	26/06/2001	with letter of	21/06/2001
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Drawings, sheets:

1/4-4/4	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/03819

- ☐ the description, pages:
☒ the claims, Nos.: 13-15
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-12
	No: Claims
Inventive step (IS)	Yes: Claims 1-12
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-12
	No: Claims

2. Citations and explanations

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The invention relates to a system for distributing information to closed used groups, e.g. to customers of an airline for informing them about changes in flight schedules.

Prior art:

D1 = WO-A-98 03005 discloses a system wherein a subscriber can change his personal settings concerning mail-service, GSM service, voice-mail service, IN service or another telecommunication service subscribed from a telephone operator. Default addresses for a service may be entered by the subscriber for the system to reroute messages in this service (e-mail, SMS, etc...).

Problem:

For distributing an information with high reliability to a user which is hard to reach, D1 only teaches the rather limited possibility of default address in one service, e.g. two GSM subscriber numbers for a GSM call, two e-mail addresses for an e-mail message, etc...

Invention:

According to the characterizing features of claim 1, the system comprises a server connected to different telecommunication services and containing personal settings of the users of the closed group. All the notifications to a particular user arriving at the system server are stored in a central database and are translated in messages adapted for distribution by the services (GSM, Internet, Voice-mail, ..), according to the user's settings. This enable the information to be transmitted to the user successively by way of different services, which improve the probability that the user gets the information.

The combination of features of claim 1 is also not disclosed in or suggested by the other documents cited in the search report. In particular, D2 = EP-A-0 836 301 (cat. X) discloses an e-mail system wherein e-mails may be forwarded by a server over another

network to the recipient, but however always in the form of an e-mail message.

Therefore claim 1 meets the requirements of Article 33 PCT.

Claims 2 to 7 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Independent claim 8 (see section VIII of this report) relates to a method of operating the system defined in claim 1. Therefore claim 8 meets the requirements of Article 33 PCT. Claim 9 (see section VIII) contains all the features of claim 1 and is thus dependent on claim 1. Therefore claim 9 and its dependent claims 10 to 12 meet the requirements of Article 33 PCT.

Re Item VIII

Certain observations on the international application

1. Independent claim 1 does not meet the requirements of Article 6 PCT for the following reasons:
 - the following terms and expressions do not have previous or clear definitions in the claim: "notifications" on page 13, line 13; "status of distribution" on page 13, line 13; "medium" on page 13, line 17; "profile" on page 13, line 25; "medium databases" on page 14, line 2.
 - on page 14, line 2, the formulation "sending messages" should read "receiving messages".
2. Independent method claim 8 does not contain all the features essential to the definition of the invention, in terms of a method claim. Its reference to claim 1 is not considered as defining these essential features and claim 8 therefore does not meet the requirements of Article 6 PCT.
3. Dependent claims 9 to 12 do not have the same designation of the subject-matter of the invention as claim 1 on which they depend. The feature that the system is used for an airline information distribution system is an additional feature which should not be part of the preamble of these dependent claims (Article 6 PCT, Rule 6.4(a) PCT).

PATENT COOPERATION TREATY

ONTVANGEN

7 AUG 2001

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

P12152

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NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

To:

Kärkkäinen, Veli-Matti
ERICSSON EUROLAB NETHERLANDS B.V.
Intellectual Property Department
P.O. Box 8
NL-5120 AA Rijen
PAYS-BAS

Date of mailing
(day/month/year) 03.08.2001

Applicant's or agent's file reference
ETM99-009

IMPORTANT NOTIFICATION

International application No.
PCT/EP99/03819

International filing date (day/month/year)
31/05/1999

Priority date (day/month/year)
31/05/1999

Applicant
TELEFONAKTIEBOLAGET LM ERICSSON et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Barrio Baranano, A

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ETM99-009	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/03819	International filing date (<i>day/month/year</i>) 31/05/1999	Priority date (<i>day/month/year</i>) 31/05/1999
International Patent Classification (IPC) or national classification and IPC H04L12/58		
Applicant TELEFONAKTIEBOLAGET LM ERICSSON et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 16 sheets.

3. This report contains indications relating to the following items:

I ☒ Basis of the report

II ☐ Priority

III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

IV ☐ Lack of unity of invention

V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

VI ☐ Certain documents cited

VII ☐ Certain defects in the international application

VIII ☒ Certain observations on the international application

Date of submission of the demand 13/12/2000	Date of completion of this report 03.08.2001
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Cretaine, P Telephone No. +49 89 2399 8828



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JC10 Rec'd PGT/PTO 30 NOV 2001

demands on personnel with regard to the handling of customers.

5 There has not been a good solution for solving these problems so far. There is an increasing demand for a solution for distributing information to closed user groups.

10 The above problems exist especially in regard to airline services. Travellers are usually very hard to reach in the case of changed flight departures or flight cancellations. Customers are often very frustrated with flight changes and even more so when they receive the information too late. The airlines have been demanding for an information
15 distribution solution to be developed that could overcome these defects and that would provide a service of good quality.

20 There are prior art solutions for distributing information to a user by means of message-distributing systems, among others deploying e-mail applications, based on wireless-or wireline networks, mentioned in patent applications WO-A-98 03005 and EP-A-0 836 301.

In patent application WO-A-98 03005, a method is disclosed
25 where a subscriber to a telephone operator can change his/her personal settings concerning mail service, GSM service, voice-mail service, IN service or another service. In patent application EP-A-0 836 301, an e-mail paging system is disclosed, where incoming usefull e-mails
30 are identified from junk mail and where a summary of e-mail messages is sent to the user over a network different from the network where email-messages are sent, and where the recipient of said summary can select a forwarding destination for said e-mail messages.

35

In the above mentioned prior art documents, methods and arrangements are described where information distribution

is handled in certain arrangements of devices based on a limited number of communication paths.

5 The drawbacks of prior art solutions are that they do not provide the service provider with a solution for distributing the necessary information to the users nor do they support any communication from the user to the service provider.

10 The aim of this invention is to overcome the drawbacks of the prior art solutions and to provide a new type of solution for distributing information to closed user groups and also a new type of arrangement for airline information distribution.

15

According to the first aspect of the present invention there is provided a system for distributing information to closed user groups comprising a system server that is connected to Internet, to a GSM network, and to an
20 external system interface, which is characterized by that the system also comprises means for generating messages according to a profile previously specified by the user, and means for distributing the information to the user, the distribution means having a selection of different
25 means for sending messages. There is also provided a method for distributing information to closed user groups, which is characterized by that the method comprises the steps of informing the customer in case of a notification using a certain medium, selecting a new medium in case the
30 customer can not be reached with a certain medium, and repeating the steps of informing the customer and selecting a new medium until the customer is reached or all media are used. Furthermore, there is provided an arrangement for airline information distribution
35 comprising a system server that is connected to Internet, to a GSM network, and to an external system interface, which is characterized by that the system also comprises means for generating messages according to a profile

AMENDED SHEET

previously specified by the user, and means for distributing the information to the user, the distribution means having a selection of different means for sending messages.

5

A more complete understanding of the system and method of the present invention may be obtained by the preferred embodiments that follow, taken in conjunction with the accompanying drawings, wherein:

10 Figure 1 is an illustrative diagram showing the general architecture of the network arrangement according to the present invention,

Figure 2 is a block diagram of the network arrangement according to the present invention,

15 Figure 3 is a flowchart diagram of a method for distributing information to closed user groups according to the present invention using the example of airline information distribution arrangement,

Figure 4 is an illustrative diagram showing an
20 arrangement for airline information distribution according to the present invention.

Figure 1 is an illustrative diagram showing the general architecture of the network arrangement according to the
25 present invention. The network arrangement comprises a GSM network 1, a Public Switched Telecommunications Network (PSTN) 7, Internet 11, server arrangement 17, external system interface 20, user's mobile phone 18 and user's personal computer 19. There can also be an ordinary phone
30 or a fax within the arrangement.

In the network arrangement the GSM network 1 has a number of Mobile Switching Centers (MSC) 2, a Short Message Service Center (SMS-C) 3, a number of Base Station
35 Controllers (BSC) 4, and Base Stations (BS) 5 and GSM mobile phones 18. Short Message Service Center (SMS-C) 3 functions as a part of the operator's network used for SMS notification.

AMENDED SHEET

GSM network 1 is also connected to the Public Switched Telecommunications Network (PSTN) 7 via switch arrangement 6. PSTN network 7 has several switches, which are marked with reference numbers 8, 9 and 10. Public Switched Telecommunications Network 7 can be used to send voice messages to those who don't own a mobile phone 18.

PSTN network 7 and GSM network 1 are both connected to Internet 11. Internet has several routing devices, which are marked with reference numbers 12, 13, 14, 15 and 16. Internet can be accessed, for example, via a cable television network connection or via PSTN network 7 connection. The server arrangement 17 contains all user specific information and is connected to the GSM network 1, to the Short Message Service Center (SMS-C) 3 and to the external system interface 20.

The user can use a personal computer 19 to access the Internet 11, either via local exchange 10 and PSTN network 7 or a cable television network connection. In an Internet session the user can fill in, and later modify, his/hers service profile stored in the server 17 database. In this service profile the user will specify the conditions in which the server 17 connected to the Internet 11, the GSM network 1 and to the external system interface 20, is to send notifications towards the mobile phone 18 of the user or messages to anybody with a mobile phone or fixed phone.

The system for distributing information to users according to the present invention comprises:

- a system server 17 that is connected to Internet 11, to a GSM network 1 and to an external system interface 20,
- means for generating messages according to a profile previously specified by the user,
- means for distributing SMS-messages to the user,
- means for sending voice messages, which means will handle the communication with the user,

- means for distributing Fax-messages to the user,
- means for distributing Data messages to the user, and
- means for distributing Email-messages to the user.

5 Figure 2 is a block diagram of the system for distributing information to users according to the present invention. The system for distributing information to users according to the present invention comprises:

- 10 - a central database 21, which stores all notifications together with their status of distribution,
- a message database 22, which contains the prepared message e.g. SMS, Voice messages, E-mail, Fax or, Telex messages, that are to be distributed to the different medium,
- 15 - a SMS message database 23, which contains all incoming notifications and prepared SMS messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via SMS,
- 20 - a voice message database 24, which contains the prepared voice messages that have to be distributed and the status of the voice messages,
- an E-mail message database 25, which contains all prepared E-mail messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via E-mail,
- 25 - a Fax message database 26, which contains all prepared Fax messages that have to be distributed to the requested addresses,
- 30 - a Data message database 27, which contains all prepared data messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via data messages,
- a History information database 28, which contains the history information in regard to users and events,
- 35 - a System info database 29, which contains all system parameters for tuning the system,

- a Personal information database 30, which contains the user specific information such as the user's service description including the templates which are used to generate messages for different medium in different languages,
- a third party interface 31, which connects the system to an external system,
- a third party application database 32, which contains the information of an external system,
- a unit for classifying and updating history information 33, which stores the updated information to the history information database 28,
- a message generator 34, which selects a notification from the Central database 21, creates a new message for distribution by one of the selected media, and stores the prepared message in the Message database 22 for further distribution,
- a message sender 35, which selects the available messages from the Message database 22 and distributes the different messages types to the different distribution media,
- a SMS sender 36, which distributes SMS-messages to the user,
- a SMS receiver 37, which receives SMS-messages from the user,
- a Voice Response Unit (VRU) sender/receiver 38, which handles inbound calls as well as outbound calls, that are handled according to the information stored in the voice message database 24,
- an E-mail sender 39, which distributes E-mail messages to the user,
- an E-mail receiver 40, which receives E-mail messages from the user,
- a Fax message sender 41, which distributes Fax-messages to the user,
- a Data message sender 42, which distributes Data messages to the user,

- a Data message receiver 43, which receives Data messages from the user,
- a message status handler 44, which reads out new information received in the medium databases for registration purposes to provide feedback for system and the Central database 21, and
- a Presentation layer 45, which is used to maintain and monitor the service and as an interface for accessing all databases and processes.

10

When the system according to the invention receives updated information that is to be distributed to a closed user group, this information is stored directly or via a human agent in a local database. The database contains information about the users and also contains the user specific service description, describing the personal data of a user with the different medium like GSM-number, SMS or Fax-number to contact him.

Based on the new messages stored in the Central database 21, the message generator 34 is triggered. The message generator 34 is the application to translate the information from the Central database 21 into the message database 22. The message generator 34 is a process that will run on the Administration server. The message generator 34 is a continuous process that will request the Central database 21 to get the next notification. The message generator 34 selects the next notification to be processed from the Central database 21 and creates a message based on the notification information and the related template information for the correct distribution medium indicated by the user. For example when preparing an SMS message, the message generator 34 reads the notification message from the Central database 21 and creates an SMS message based on the notification message and the user specific SMS-template stored in the Personal information database 30. The message generator 34 stores the result in the Message database 22.

AMENDED SHEET

The prepared message is stored in the Message database 22 for distribution. The message sender 35 distributes the messages stored in the Message database 22 to the database 23-27 of the right medium. Based on the system parameters stored in the System info database 29 this medium 36, 38, 39, 41, 42 will try for a certain time-period to get in contact with the user to inform him. The message sender 35 is a separate process and works in parallel to the message generator 34. In this way new media can easily be added, without changing the complete system. The message sender 35 is a process that will run on the Administration server. The Message sender 35 is a permanent process that will read the Message database 22 on information to pass through. The application will read and remove the next message from the Message database 22 based on the First In, First Out (FIFO) principle and place it in the right medium Message database 23-27.

If the user can not be contacted or does not confirm the message in time, the Message status handler 44 will remove the message from the Medium database 23-27 and will ask the Message Generator 34 to generate a message of a different medium to contact this particular user. The Message status handler 44 is a permanent process that will read the Medium databases 23-27 and System Info database 29 on information to pass through to Central database 21.

The Presentation layer 45 can be used to handle and present all requested management information and can also be used to measure the performance of the overall system. By adjusting the system parameters stored in the System Info database 29, the Presentation layer 45 can be used to test different System Configurations.

Figure 3 is a flowchart diagram of a method for distributing information to closed user groups according to the present invention using the example of airline

AMENDED SHEET

information distribution arrangement. In the method there is first a notification 46 that will start the procedure. For example, in case of a cancellation, delay or rescheduling of a flight the airline wants to inform the customer and when possible offer him an alternative flight 47. There is an occurrence message 48 delivered to the customer. In case the customer is not reached and the message is still relevant 49, the message will be distributed again 50 to the customer.

10

The system tries to contact the user using a certain medium. When the customer can not be reached with a certain medium there will be a new medium selected 51. The system will continue to contact the customer again 53, until the medium is out of time 54. Then, if the customer is not reached again and the message is still relevant 49, there will be a new medium selected 51. In case that all media are used there is a status message 52 stating that the customer could not be reached. In the case where the user can be contacted, the user is requested to confirm the proposed alternative flight arrangement 55. The reservation will be then made accordingly 56.

In the case where an alternative flight is confirmed by the user 55, the confirmation should be registered within the booking system 57. Where the confirmation is handled within the booking system 57, the user will receive a confirmation message 59. Otherwise, the user will be informed about the problems with the confirmation 58 and will be offered when possible another alternative.

Figure 4 is an illustrative diagram showing an arrangement for airline information distribution according to the present invention. The airline information distribution arrangement according to the invention comprises a system server 17 that is connected to Internet 11, to a GSM network 1 and to an external system interface 20. The airline information distribution arrangement also

AMENDED SHEET

comprises a means for checking messages according to a profile previously specified by the user, a means for generating messages, and a means for distributing the information to the user having a selection of different
5 means for sending messages.

The arrangement initiates when a notification is sent ① from the external system 20 to the system server 17. The system server 17 will then send ② a notification and an
10 alternate flight offer over the GSM network 1 as an SMS-message to the customer 18. In case there is no response from the customer 18, an alternative medium is selected according to the user profile. Next, there is an E-mail message sent ③ to the customer's personal computer 19. If
15 there is still no response from the customer 19, a third alternative medium is selected according to the user profile. As a third notification there will be a Voice message sent ④ to the GSM terminal 60 of the customer's secretary. When the customer's secretary 60 confirms ⑤
20 the alternative flight booking a confirmation will be sent ⑥ back to the GSM terminal 60 of the customer's secretary. The above mentioned process is an example and the means of communication and the order of communicating is configurable.

25

The user can specify the conditions, in which the system server 17 will send notifications towards the user, and how the notifications are to be performed. The user can access the Internet page of the service provider and enter
30 the notification information to his specific user profile. The user 19 can also select to whom 60 ⑤ the notifications are sent to. The user can also select the service to be charged via the phone bill.

35 The airline can receive updated flight information that a certain flight is cancelled, delayed or has had a schedule change. This information is stored directly or via a human agent in a local database. The database contains
AMENDED SHEET

information about which passengers are booked on a certain flight and also contains the service description of all passengers, describing the personal data of a user with the different media like GSM-number, SMS, Fax-number, E-mail or telex to contact the user.

When the user is contacted, he is informed and given the possibility to either confirm the message or to be connected to a helpdesk agent for further information. In case a proposed alternative flight is accepted, the Message Status Handler and Confirmation Handler will check the local database whether the proposed alternative flight is still available. The application on the database will compose a message to confirm the registration to the user that is handled via the overall described procedure.

As feedback to the system the user can respond on several alternatives for a change in flight, request for refund of money, request for connecting to the helpdesk, or request for repeating the message. The messages are first of all selected on priority and secondly on time so that the sending of important message can be secured even in the case of high traffic loads.

System solution according to the invention is flexible and scaleable because of the modular, process oriented design. System has a secure and easy connection to the network by using an open architecture.

WHAT IS CLAIMED IS:

1. A system for distributing information to closed user groups comprising a system server (17), preserving
5 personal settings of members of said closed user group, that is connected to Internet (11), to a GSM network (1) and to an external system interface (20), where the system provides mail services, GSM-services, voice mail services, GSM-services, IN services or another service being
10 subscribed of a telephone provider, characterized in that the system also comprises
 - a central database (21), which stores all notifications together with their status of distribution,
 - a message database (22), which contains the prepared
15 message e.g. SMS, Voice messages, E-mail, Fax or, Telex messages, that are to be distributed to the different medium,
 - message distribution databases (23)-(27), which contains all incoming notifications and prepared messages
20 that have to be distributed to the requested addresses as well as all the feedback status information received from the user,
 - information databases (28)-(30),
 - a message generator (34) for generating messages
25 according to a profile previously specified by the member of the closed user group, which selects a notification from the central database (21), creates a new message for distribution by one of the selected media, and stores the prepared message in the message database (22) for further
30 distribution, and
 - a message sender (35) for distributing the information to the user, which selects the available messages from the message database (22) and distributes the different messages types to the different distribution media,
 - 35 - distribution senders (36), (38), (39), (41), (42) for sending messages to the user,

- distribution receivers (37), (38), (40), (43) for sending messages to the user, and
- a message status handler (44), which reads out new information received in the medium databases for registration purposes to provide feedback for system and the central database (21).

2. An information distribution system according to Claim 1, characterised in that message distribution databases (23)-(27) are:

- a SMS message database (23), which contains all incoming notifications and prepared SMS messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via SMS,
- a voice message database (24), which contains the prepared voice messages that have to be distributed and the status of the voice messages,
- an E-mail message database (25), which contains all prepared E-mail messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via E-mail,
- a Fax message database (26), which contains all prepared Fax messages that have to be distributed to the requested addresses,
- a Data message database (27), which contains all prepared data messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via data messages,

30

3. An information distribution system according to Claim 1, characterized in that the system comprises

- a History information database (28), which contains the history information in regard to users and events,
- a System info database (29), which contains all system parameters for tuning the system,

35

- a Personal information database (30), which contains the user specific information such as the user's service description including the templates which are used to generate messages for different medium in different languages,

4. An information distribution system according to Claim 1, characterized in that the system comprises
- a SMS sender (36), which distributes SMS-messages to the user,
 - a Voice Response Unit (VRU) sender/receiver (38), which handles inbound calls as well as outbound calls, that are handled according to the information stored in the voice message database (24),
 - an E-mail sender (39), which distributes E-mail messages to the user,
 - a Fax message sender (41), which distributes Fax-messages to the user,
 - a Data message sender (42), which distributes Data messages to the user,

5. An information distribution system according to Claim 1, characterized in that the system comprises
- a SMS receiver (37), which receives SMS-messages from the user,
 - a Voice Response Unit (VRU) sender/receiver (38), which handles inbound calls as well as outbound calls, that are handled according to the information stored in the voice message database (24),
 - an E-mail receiver (40), which receives E-mail messages from the user,
 - a Data message receiver (43), which receives Data messages from the user,

6. An information distribution system according to Claim 1, characterized in that the system comprises

- a third party interface (31), which connects the system to an external system,
 - a third party application database (32), which contains the information of an external system,
 - 5 - a unit for classifying and updating history information (33), which stores the updated information to the history information database (28),
 - a unit for having a user accessing the Internet page of the service provider and enter the notification
 - 10 information to his specific user profile,
7. An information distribution system according to Claim 1, characterized in that the system comprises
- a Presentation layer (45), which is used to maintain
 - 15 and monitor the service and as an interface for accessing all databases and processes
8. A method in a system for distributing information to closed user groups according to claim 1, characterized in
- 20 that the method comprises the steps of
- translating a new message into a notification message by message generator (34) according to settings in the Personal information database (30),
 - informing the customer in case of a notification (46)
 - 25 using a certain medium,
 - selecting a new medium (51) in case the customer can not be reached with a certain medium,
 - repeating (53), (54) the steps of informing the customer and selecting a new medium (51) using all
 - 30 specified media until the customer is reached (55).
9. An airline information distribution system according to Claim 1, characterized in that the system is configured so, that
- 35 - when a notification is sent (①) from the external system (20) to the system server (17), the system server (17) will send (②) a notification and an alternative

flight offer over a medium (18) that is selected according to the user profile and that

- when in case there is no response from the customer (18), an alternative medium (19) is selected according to the user profile (3), (4), and that
- when the customer confirms (5) the alternative flight booking there is a confirmation sent (6) back to the customer.

10 10. An airline information distribution system according to Claim 9, characterized in that the system is configured so that a user can specify the conditions, in which the system server (17) will send notifications towards the user, and how the notifications are to be performed.

15 11. An airline information distribution system according to Claim 9, characterized in that the system is configured so that a user can access the Internet page of the service provider and enter the notification information to his specific user profile.

20 12. An airline information distribution system according to Claim 9, characterized in that the system is configured so that the user (19) can select to whom (60) (6) the notifications are to be sent to.

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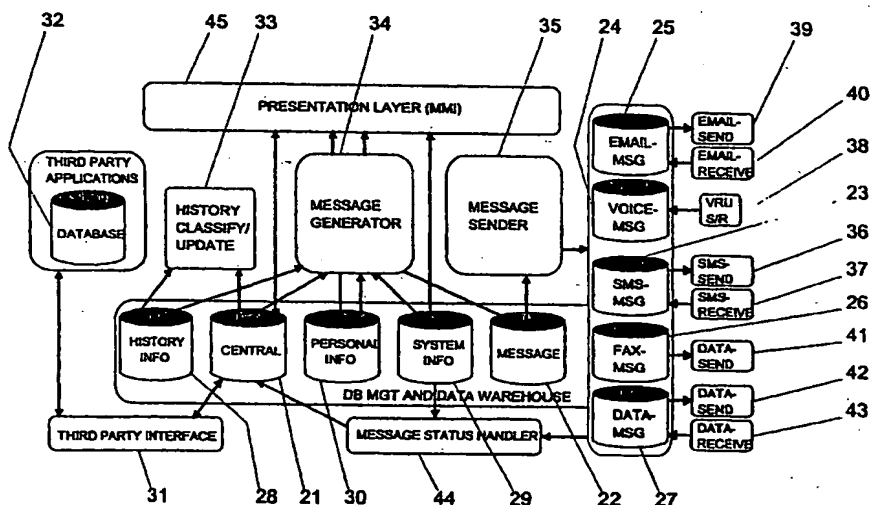
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(54) Title: SYSTEM AND METHOD FOR DISTRIBUTING AIRLINE INFORMATION TO CLOSED USER GROUPS



(57) Abstract: The invention relates to a new type of solution for distributing information to closed user groups, and more particularly, to a new type of arrangement for airline information distribution. A system according to the invention comprises a system server that is connected to Internet (11), to a GSM network (1), and to an external system interface (20), means for generating messages (34) according to a profile previously specified by the user, and means for distributing the information to the user (35), the distribution means having a selection of different means (36, 38, 39, 41, 42) for sending messages. The solution according to the invention can be used as a service solution in telecommunications networks.

demands on personnel with regard to the handling of customers.

5 There has not been a good solution for solving these problems so far. There is an increasing demand for a solution for distributing information to closed user groups.

10 The above problems exist especially in regard to airline services. Travellers are usually very hard to reach in the case of changed flight departures or flight cancellations. Customers are often very frustrated with flight changes and even more so when they receive the information too late. The airlines have been demanding for an information
15 distribution solution to be developed that could overcome these defects and that would provide a service of good quality.

20 The drawbacks of prior art solutions are that they do not provide the service provider with a solution for distributing the necessary information to the users nor do they support any communication from the user to the service provider.

25 The aim of this invention is to overcome the drawbacks of the prior art solutions and to provide a new type of solution for distributing information to closed user groups and also a new type of arrangement for airline information distribution.

30

According to the first aspect of the present invention there is provided a system for distributing information to closed user groups comprising a system server that is connected to Internet, to a GSM network, and to an
35 external system interface, which is characterized by that the system also comprises means for generating messages according to a profile previously specified by the user, and means for distributing the information to the user,

the distribution means having a selection of different means for sending messages. There is also provided a method for distributing information to closed user groups, which is characterized by that the method comprises the

5 steps of informing the customer in case of a notification using a certain medium, selecting a new medium in case the customer can not be reached with a certain medium, and repeating the steps of informing the customer and selecting a new medium until the customer is reached or

10 all media are used. Furthermore, there is provided an arrangement for airline information distribution comprising a system server that is connected to Internet, to a GSM network, and to an external system interface, which is characterized by that the system also comprises

15 means for generating messages according to a profile previously specified by the user, and means for distributing the information to the user, the distribution means having a selection of different means for sending messages.

20

A more complete understanding of the system and method of the present invention may be obtained by the preferred embodiments that follow, taken in conjunction with the accompanying drawings, wherein:

25 Figure 1 is an illustrative diagram showing the general architecture of the network arrangement according to the present invention,

Figure 2 is a block diagram of the network arrangement according to the present invention,

30 Figure 3 is a flowchart diagram of a method for distributing information to closed user groups according to the present invention using the example of airline information distribution arrangement,

Figure 4 is an illustrative diagram showing an

35 arrangement for airline information distribution according to the present invention.

Figure 1 is an illustrative diagram showing the general architecture of the network arrangement according to the present invention. The network arrangement comprises a GSM network 1, a Public Switched Telecommunications Network (PSTN) 7, Internet 11, server arrangement 17, external system interface 20, user's mobile phone 18 and user's personal computer 19. There can also be an ordinary phone or a fax within the arrangement.

10 In the network arrangement the GSM network 1 has a number of Mobile Switching Centers (MSC) 2, a Short Message Service Center (SMS-C) 3, a number of Base Station Controllers (BSC) 4, and Base Stations (BS) 5 and GSM mobile phones 18. Short Message Service Center (SMS-C) 3
15 functions as a part of the operator's network used for SMS notification.

GSM network 1 is also connected to the Public Switched Telecommunications Network (PSTN) 7 via switch arrangement
20 6. PSTN network 7 has several switches, which are marked with reference numbers 8, 9 and 10. Public Switched Telecommunications Network 7 can be used to send voice messages to those who don't own a mobile phone 18.

25 PSTN network 7 and GSM network 1 are both connected to Internet 11. Internet has several routing devices, which are marked with reference numbers 12, 13, 14, 15 and 16. Internet can be accessed, for example, via a cable television network connection or via PSTN network 7
30 connection. The server arrangement 17 contains all user specific information and is connected to the GSM network 1, to the Short Message Service Center (SMS-C) 3 and to the external system interface 20.

35 The user can use a personal computer 19 to access the Internet 11, either via local exchange 10 and PSTN network 7 or a cable television network connection. In an Internet session the user can fill in, and later modify, his/hers

service profile stored in the server 17 database. In this service profile the user will specify the conditions in which the server 17 connected to the Internet 11, the GSM network 1 and to the external system interface 20, is to
5 send notifications towards the mobile phone 18 of the user or messages to anybody with a mobile phone or fixed phone.

The system for distributing information to users according to the present invention comprises:

- 10 - a system server 17 that is connected to Internet 11, to a GSM network 1 and to an external system interface 20,
- means for generating messages according to a profile previously specified by the user,
- means for distributing SMS-messages to the user,
- 15 - means for sending voice messages, which means will handle the communication with the user,
- means for distributing Fax-messages to the user,
- means for distributing Data messages to the user, and
- means for distributing Email-messages to the user.

20

Figure 2 is a block diagram of the system for distributing information to users according to the present invention. The system for distributing information to users according to the present invention comprises:

- 25 - a central database 21, which stores all notifications together with their status of distribution,
- a message database 22, which contains the prepared message e.g. SMS, Voice messages, E-mail, Fax or, Telex messages, that are to be distributed to the different
30 medium,
- a SMS message database 23, which contains all incoming notifications and prepared SMS messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via
35 SMS,
- a voice message database 24, which contains the prepared voice messages that have to be distributed and the status of the voice messages,

- an E-mail message database 25, which contains all prepared E-mail messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via E-mail,
- 5 - a Fax message database 26, which contains all prepared Fax messages that have to be distributed to the requested addresses,
- a Data message database 27, which contains all prepared data messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via data messages,
- 10 - a History information database 28, which contains the history information in regard to users and events,
- a System info database 29, which contains all system parameters for tuning the system,
- 15 - a Personal information database 30, which contains the user specific information such as the user's service description including the templates which are used to generate messages for different medium in different languages,
- 20 - a third party interface 31, which connects the system to an external system,
- a third party application database 32, which contains the information of an external system,
- 25 - a unit for classifying and updating history information 33, which stores the updated information to the history information database 28,
- a message generator 34, which selects a notification from the Central database 21, creates a new message for distribution by one of the selected media, and stores the prepared message in the Message database 22 for further distribution,
- 30 - a message sender 35, which selects the available messages from the Message database 22 and distributes the different messages types to the different distribution media,
- 35 - a SMS sender 36, which distributes SMS-messages to the user,

- a SMS receiver 37, which receives SMS-messages from the user,
 - a Voice Response Unit (VRU) sender/receiver 38, which handles inbound calls as well as outbound calls, that are
 - 5 handled according to the information stored in the voice message database 24,
 - an E-mail sender 39, which distributes E-mail messages to the user,
 - an E-mail receiver 40, which receives E-mail messages
 - 10 from the user,
 - a Fax message sender 41, which distributes Fax-messages to the user,
 - a Data message sender 42, which distributes Data messages to the user,
 - 15 - a Data message receiver 43, which receives Data messages from the user,
 - a message status handler 44, which reads out new information received in the medium databases for registration purposes to provide feedback for system and
 - 20 the Central database 21, and
 - a Presentation layer 45, which is used to maintain and monitor the service and as an interface for accessing all databases and processes.
- 25 When the system according to the invention receives updated information that is to be distributed to a closed user group, this information is stored directly or via a human agent in a local database. The database contains information about the users and also contains the user
- 30 specific service description, describing the personal data of a user with the different medium like GSM-number, SMS or Fax-number to contact him.

Based on the new messages stored in the Central database

35 21, the message generator 34 is triggered. The message generator 30 is the application to translate the information from the Central database 21 into the message database 22. The message generator 34 is a process that

will run on the Administration server. The message generator 34 is a continuous process that will request the Central database 21 to get the next notification. The message generator 34 selects the next notification to be
5 processed from the Central database 21 and creates a message based on the notification information and the related template information for the correct distribution medium indicated by the user. For example when preparing an SMS message, the message generator 34 reads the
10 notification message from the Central database 21 and creates an SMS message based on the notification message and the user specific SMS-template stored in the Personal information database 30. The message generator 34 stores the result in the Message database 22.

15 The prepared message is stored in the Message database 22 for distribution. The message sender 35 distributes the messages stored in the Message database 22 to the database 23-27 of the right medium. Based on the system parameters
20 stored in the System info database 29 this medium 36, 38, 39, 41, 42 will try for a certain time-period to get in contact with the user to inform him. The message sender 35 is a separate process and works in parallel to the message generator 34. In this way new media can easily be added,
25 without changing the complete system. The message sender 35 is a process that will run on the Administration server. The Message sender 35 is a permanent process that will read the Message database 22 on information to pass through. The application will read and remove the next
30 message from the Message database 22 based on the First In, First Out (FIFO) principle and place it in the right medium Message database 23-27.

If the user can not be contacted or does not confirm the
35 message in time, the Message status handler 44 will remove the message from the Medium database 23-27 and will ask the Message Generator 34 to generate a message of a different medium to contact this particular user. The

Message status handler 44 is a permanent process that will read the Medium databases 23-27 and System Info database 29 on information to pass through to Central database 21.

5 The Presentation layer 45 can be used to handle and present all requested management information and can also be used to measure the performance of the overall system. By adjusting the system parameters stored in the System Info database 29, the Presentation layer 45 can be used to
10 test different System Configurations.

Figure 3 is a flowchart diagram of a method for distributing information to closed user groups according to the present invention using the example of airline
15 information distribution arrangement. In the method there is first a notification 46 that will start the procedure. For example, in case of a cancellation, delay or rescheduling of a flight the airline wants to inform the customer and when possible offer him an alternative flight
20 47. There is an occurrence message 48 delivered to the customer. In case the customer is not reached and the message is still relevant 49, the message will be distributed again 50 to the customer.

25 The system tries to contact the user using a certain medium. When the customer can not be reached with a certain medium there will be a new medium selected 51. The system will continue to contact the customer again 53, until the medium is out of time 54. Then, if the customer
30 is not reached again and the message is still relevant 49, there will be a new medium selected 51. In case that all media are used there is a status message 52 stating that the customer could not be reached. In the case where the user can be contacted, the user is requested to confirm
35 the proposed alternative flight arrangement 55. The reservation will be then made accordingly 56.

In the case where an alternative flight is confirmed by the user 55, the confirmation should be registered within the booking system 57. Where the confirmation is handled within the booking system 57, the user will receive a confirmation message 59. Otherwise, the user will be informed about the problems with the confirmation 58 and will be offered when possible another alternative.

Figure 4 is an illustrative diagram showing an arrangement for airline information distribution according to the present invention. The airline information distribution arrangement according to the invention comprises a system server 17 that is connected to Internet 11, to a GSM network 1 and to an external system interface 20. The airline information distribution arrangement also comprises a means for checking messages according to a profile previously specified by the user, a means for generating messages, and a means for distributing the information to the user having a selection of different means for sending messages.

The arrangement initiates when a notification is sent ① from the external system 20 to the system server 17. The system server 17 will then send ② a notification and an alternate flight offer over the GSM network 1 as an SMS-message to the customer 18. In case there is no response from the customer 18, an alternative medium is selected according to the user profile. Next, there is an E-mail message sent ③ to the customer's personal computer 19. If there is still no response from the customer 19, a third alternative medium is selected according to the user profile. As a third notification there will be a Voice message sent ④ to the GSM terminal 60 of the customer's secretary. When the customer's secretary 60 confirms ⑤ the alternative flight booking a confirmation will be sent ⑥ back to the GSM terminal 60 of the customer's secretary. The above mentioned process is an example and

the means of communication and the order of communicating is configurable.

The user can specify the conditions, in which the system
5 server 17 will send notifications towards the user, and
how the notifications are to be performed. The user can
access the Internet page of the service provider and enter
the notification information to his specific user profile.
The user 19 can also select to whom 60 ⑤ the
10 notifications are sent to. The user can also select the
service to be charged via the phone bill.

The airline can receive updated flight information that a
certain flight is cancelled, delayed or has had a schedule
15 change. This information is stored directly or via a human
agent in a local database. The database contains
information about which passengers are booked on a certain
flight and also contains the service description of all
passengers, describing the personal data of a user with
20 the different media like GSM-number, SMS, Fax-number, E-
mail or telex to contact the user.

When the user is contacted, he is informed and given the
possibility to either confirm the message or to be
25 connected to a helpdesk agent for further information. In
case a proposed alternative flight is accepted, the
Message Status Handler and Confirmation Handler will check
the local database whether the proposed alternative flight
is still available. The application on the database will
30 compose a message to confirm the registration to the user
that is handled via the overall described procedure.

As feedback to the system the user can respond on several
alternatives for a change in flight, request for refund of
35 money, request for connecting to the helpdesk, or request
for repeating the message. The messages are first of all
selected on priority and secondly on time so that the

sending of important message can be secured even in the case of high traffic loads.

5 System solution according to the invention is flexible and scaleable because of the modular, process oriented design. System has a secure and easy connection to the network by using an open architecture.

WHAT IS CLAIMED IS:

1. A system for distributing information to closed user groups comprising a system server (17) that is connected to Internet (11), to a GSM network (1) and to an external system interface (20), **characterized** in that the system also comprises
 - means for generating messages (34) according to a profile previously specified by the user, and
 - means for distributing the information to the user (35), the distribution means having a selection of different means (36), (38), (39), (41), (42) for sending messages.
2. An information distribution system according to Claim 1, **characterized** in that the system enables a user to access the Internet page of the service provider and enter the notification information to his specific user profile.
3. An information distribution system according to Claim 1, **characterized** in that the system comprises a means for distributing SMS-messages (36) to the user.
4. An information distribution system according to Claim 1, **characterized** in that the system comprises a means for sending voice messages (38), which means will handle the communication with the user.
5. An information distribution system according to Claim 1, **characterized** in that the system comprises a means for distributing E-mail messages (39) to the user.
6. An information distribution system according to Claim 1, **characterized** in that the system comprises a means for distributing Fax messages (41) to the user.

7. An information distribution system according to Claim 1, **characterized** in that the system comprises a means for distributing Data messages (42) to the user.

- 5 8. An information distribution system according to Claim 1, **characterized** in that the system comprises
- a central database (21), which stores all notifications together with their status of distribution,
 - a message database (22), which contains the prepared
10 message e.g. SMS, Voice messages, E-mail, Fax or, Telex messages, that are to be distributed to the different medium,
 - a SMS message database (23), which contains all incoming notifications and prepared SMS messages that have
15 to be distributed to the requested addresses as well as all the feedback status information received from the user via SMS,
 - a voice message database (24), which contains the prepared voice messages that have to be distributed and
20 the status of the voice messages,
 - an E-mail message database (25), which contains all prepared E-mail messages that have to be distributed to the requested addresses as well as all the feedback status information received from the user via E-mail,
 - 25 - a Fax message database (26), which contains all prepared Fax messages that have to be distributed to the requested addresses,
 - a Data message database (27), which contains all prepared data messages that have to be distributed to the
30 requested addresses as well as all the feedback status information received from the user via data messages,
 - a History information database (28), which contains the history information in regard to users and events,
 - a System info database (29), which contains all system
35 parameters for tuning the system,
 - a Personal information database (30), which contains the user specific information such as the user's service

description including the templates which are used to generate messages for different medium in different languages,

- a third party interface (31), which connects the system to an external system,
- a third party application database (32), which contains the information of an external system,
- a unit for classifying and updating history information (33), which stores the updated information to the history information database (28),
- a message generator (34), which selects a notification from the Central database (21), creates a new message for distribution by one of the selected media, and stores the prepared message in the Message database (22) for further distribution,
- a message sender (35), which selects the available messages from the Message database (22) and distributes the different messages types to the different distribution media,
- a SMS sender (36), which distributes SMS-messages to the user,
- a SMS receiver (37), which receives SMS-messages from the user,
- a Voice Response Unit (VRU) sender/receiver (38), which handles inbound calls as well as outbound calls, that are handled according to the information stored in the voice message database (24),
- an E-mail sender (39), which distributes E-mail messages to the user,
- an E-mail receiver (40), which receives E-mail messages from the user,
- a Fax message sender (41), which distributes Fax-messages to the user,
- a Data message sender (42), which distributes Data messages to the user,
- a Data message receiver (43), which receives Data messages from the user,

- a message status handler (44), which reads out new information received in the medium databases for registration purposes to provide feedback for system and the Central database (21), and

- 5 - a Presentation layer (45), which is used to maintain and monitor the service and as an interface for accessing all databases and processes.

9. A method for distributing information to closed user groups, **characterized** in that the method comprises the steps of

- informing the customer in case of a notification (46) using a certain medium,
- selecting a new medium (51) in case the customer can not be reached with a certain medium,
- repeating (53), (54) the steps of informing the customer and selecting a new medium (51) using all specified media until the customer is reached (55).

10. An arrangement for airline information distribution comprising a system server (17) that is connected to Internet (11), to a GSM network (1), and to an external system interface (20), **characterized** in that the arrangement also comprises

- means for generating messages (34) according to a profile previously specified by the user, and
- means for distributing the information to the user (35), the distribution means having a selection of different means (36), (38), (39), (41), (42) for sending messages.

11. An airline information distribution arrangement according to Claim 10, **characterized** in that the arrangement is configured so, that

- when a notification is sent (①) from the external system (20) to the system server (17), the system server (17) will send (②) a notification and an alternative

flight offer over a medium (18) that is selected according to the user profile and that

- when in case there is no response from the customer (18), an alternative medium (19) is selected according to the user profile (3), (4), and that
- when the customer confirms (5) the alternative flight booking there is a confirmation sent (6) back to the customer.

12. An airline information distribution arrangement according to Claim 11, **characterized** in that the arrangement is configured so that a user can specify the conditions, in which the system server (17) will send notifications towards the user, and how the notifications are to be performed.

13. An airline information distribution arrangement according to Claim 12, **characterized** in that the arrangement is configured so that a user can access the Internet page of the service provider and enter the notification information to his specific user profile.

14. An airline information distribution arrangement according to Claim 11, **characterized** in that the arrangement is configured so that the user (19) can select to whom (60) (5) the notifications are to be sent to.

15. An airline information distribution arrangement according to Claim 11, **characterized** in that the service will be charged via the phone bill.

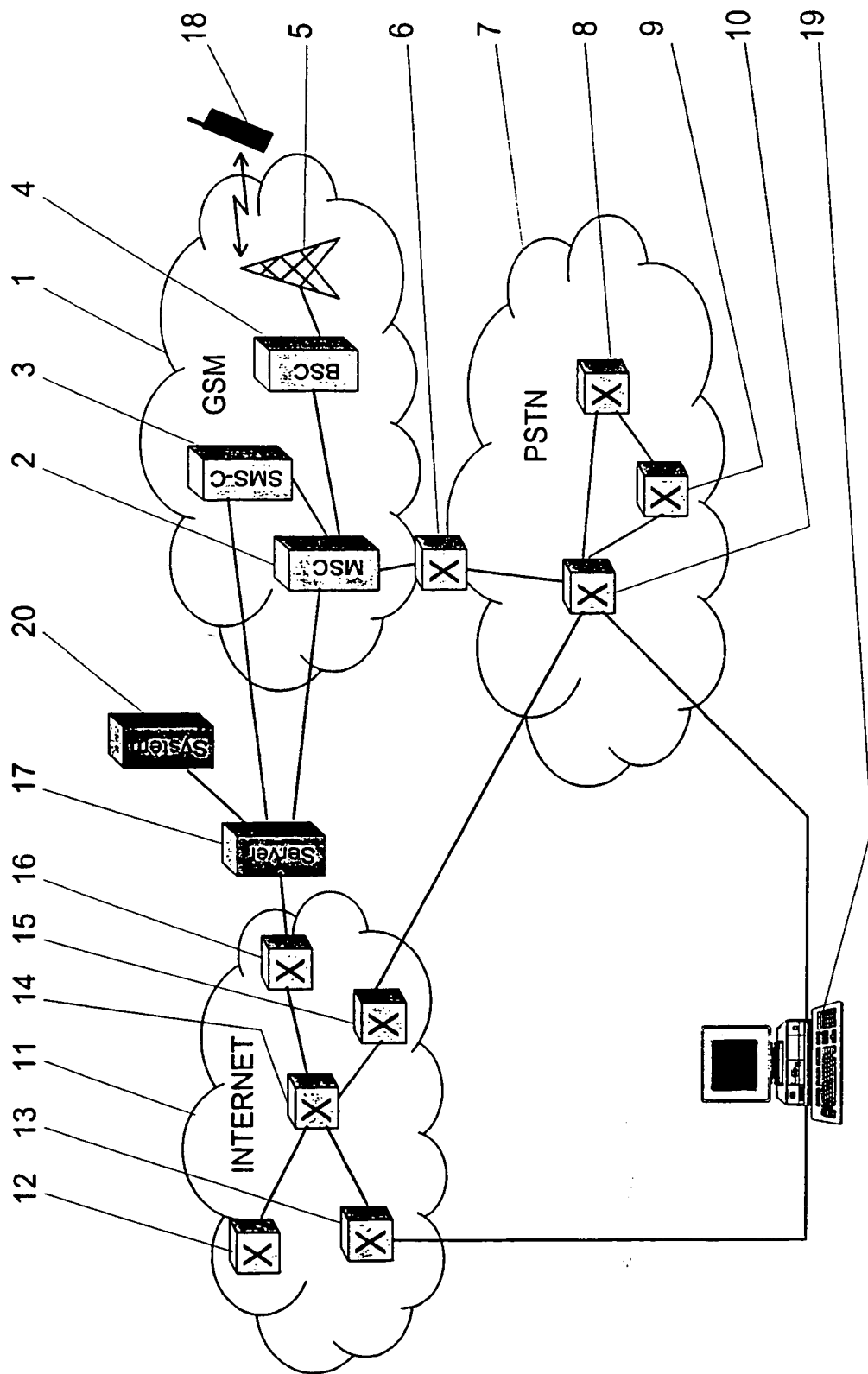


FIG. 1

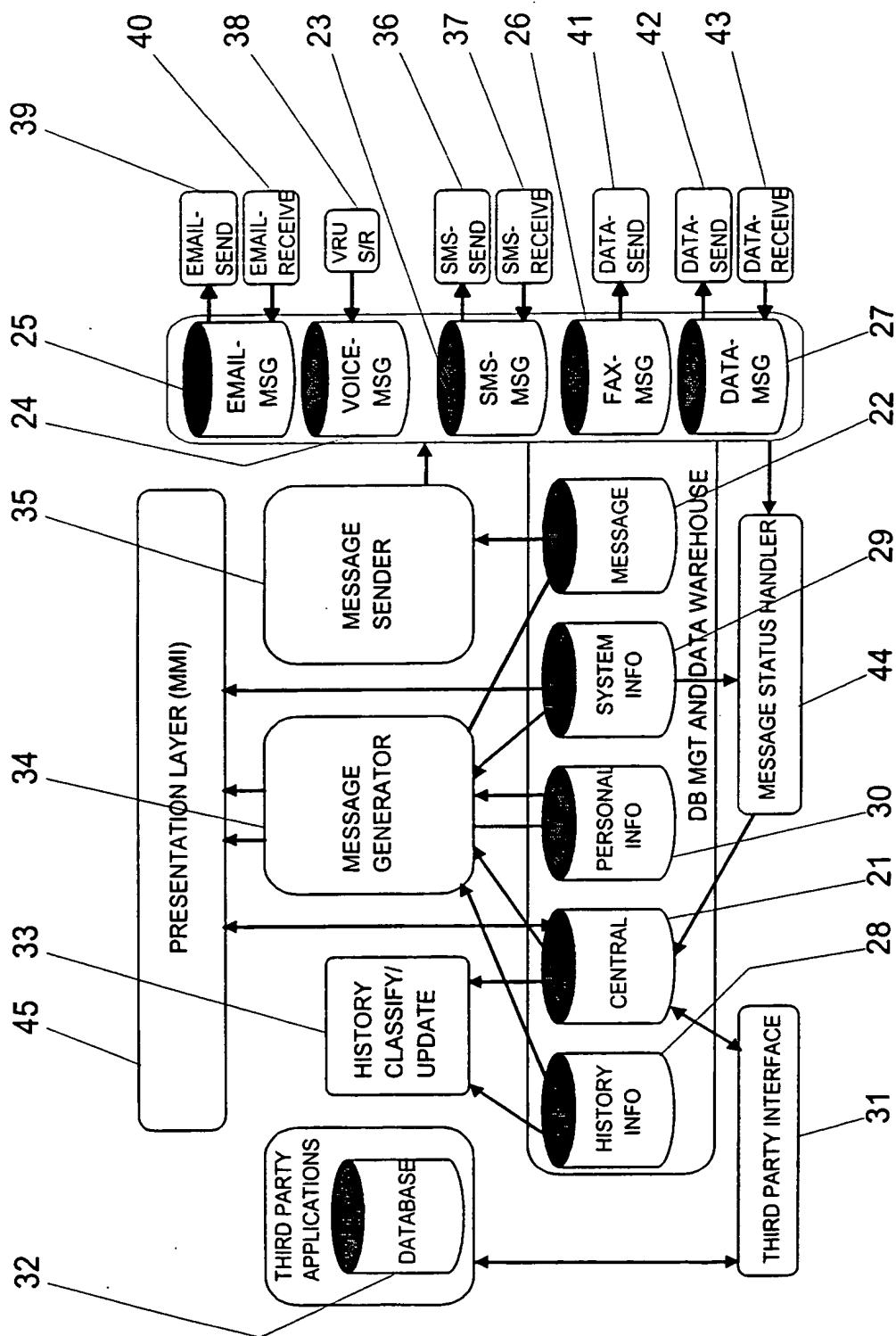


FIG. 2

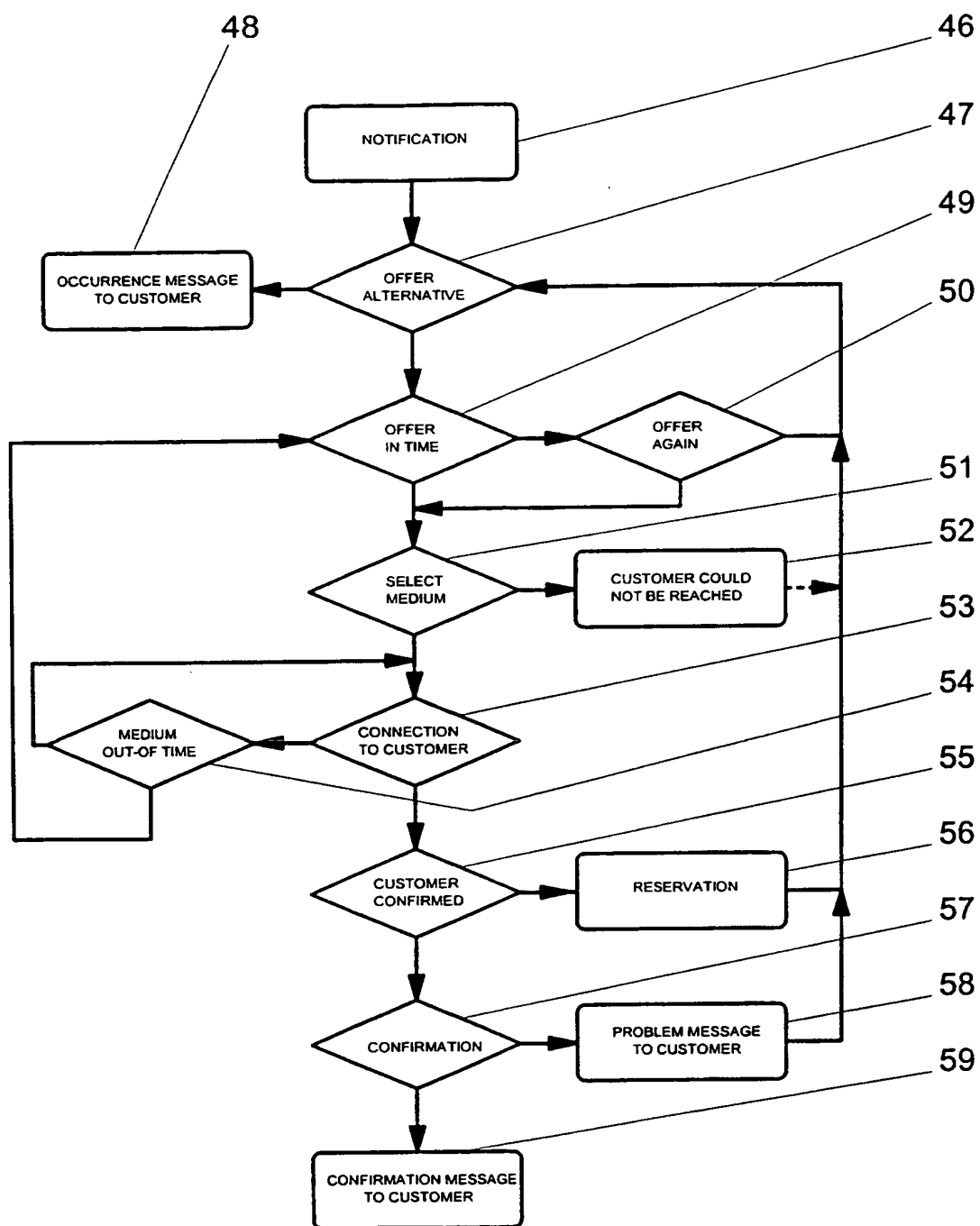


FIG. 3

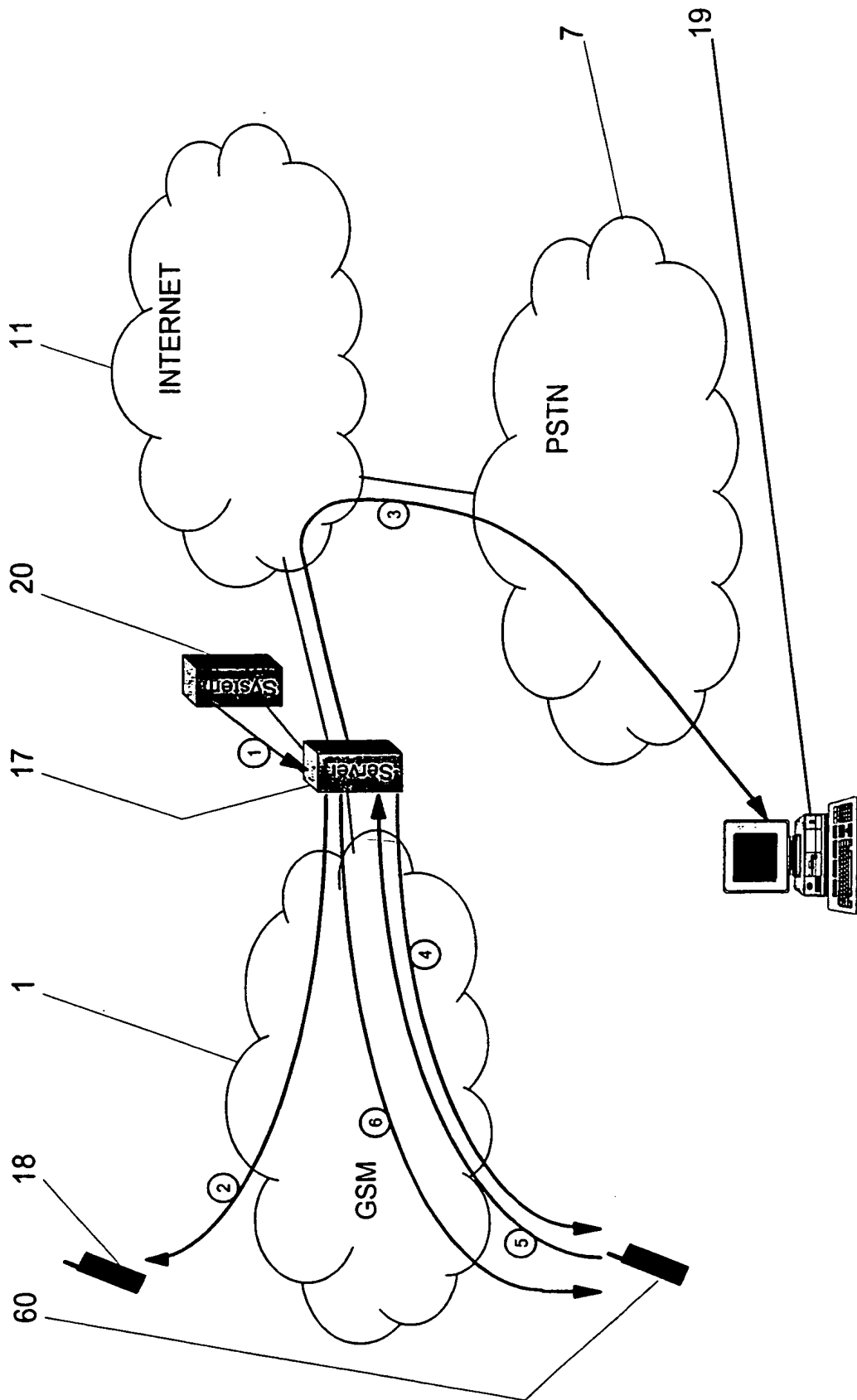


FIG. 4